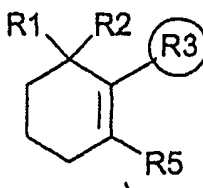


## Claims

1. An agent for use on the skin and/or the hair, characterized in that the agent comprises one or more tetrasubstituted cyclohexene compounds of the structure

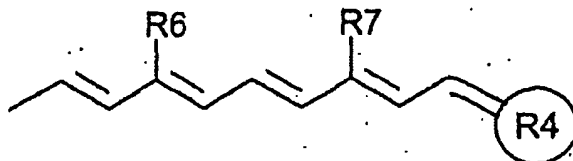


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where the radicals

- R1, R2 and/or R5 are chosen from the group hydrogen, methyl, ethyl, propyl, isopropyl, butyl, tert-butyl, hydroxymethyl, hydroxyethyl, hydroxypropyl, hydroxy and/or carboxylic acid alkyl esters with alkyl radicals chosen from methyl, ethyl, propyl or butyl,
- R3 is chosen from the group of the compound radicals of the structure (I) where (I)

10



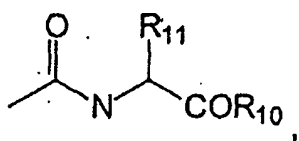
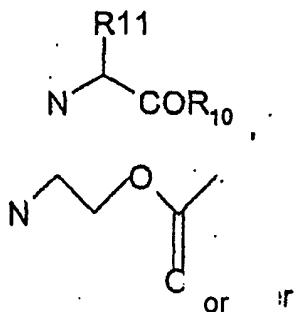
15

- R6 and/or R7 are chosen from the group hydrogen, methyl, ethyl, propyl, isopropyl, butyl, tert-butyl, hydroxymethyl, hydroxyethyl, hydroxypropyl, hydroxy or carboxylic acid alkyl esters where the alkyl radical is chosen from methyl, ethyl, propyl or butyl,
- R4 is chosen from
  - carbonyl oxygen,
  - amino acid radicals Ala, Ser, Gly, Val, Leu, Ile, Pro, Trp, Phe, Met Tyr, Thr, Cys, Asn, Asp, Glu, Lys, Arg, Gln, H, Orn, Sar, Hyl, Hyp, Hse or Hcy,

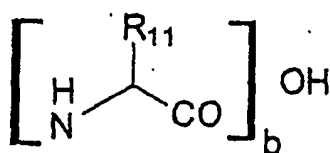
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- radicals of the structure  $N-(CH_2)_x-OH$ ,  $N-(CHR_9)_x-CH_2OH$ ,  $N-(CHR_9)_x-OH$ ,  $N-(CH_2)_x-OCOMe$ , where in each case  $x = 1-10$ ,  $N-OH$ , or
- radicals of the structure

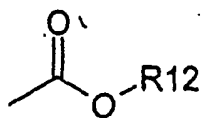


- 5 -  $R_9$  is chosen from hydrogen and/or hydroxy,
- $R_{11}$  is chosen from methyl, hydroxymethyl, hydrogen, prop-2-yl, isobutyl, but-2-yl, pyrrolidine-1,2-diyl, 1H-indol-3-ylmethyl, benzyl; 2-(methylthio)ethyl, 4-hydroxybenzyl, 1-hydroxyethyl, mercaptomethyl, 2-amino-2-oxoethyl, carboxymethyl, carboxyethyl, 4-aminobutyl, 3-
- 10 { [amino(imino)methyl]amino } propyl, 3-amino-3-oxopropyl, hydrogen and N-Me, 3-aminopropyl, ethyl, 1H-imidazol-4-ylmethyl, butyl, propyl, 4-amino-3-hydroxybutyl, 4-hydroxypyrrolidine-1,2-diyl, hydroxyethyl, or 2-mercaptoethyl,
- $R_{10}$  is chosen from hydroxy (-OH), peptidically N-linked amino acid radicals chosen from Ala, Ser, Gly, Val, Leu, Ile, Pro, Trp, Phe, Met Tyr, Thr, Cys, Asn,
- 15 Asp, Glu, Lys, Arg, Gln, H, Orn, Sar, Hyl, Hyp, Hse or Hcy, radicals of the structure

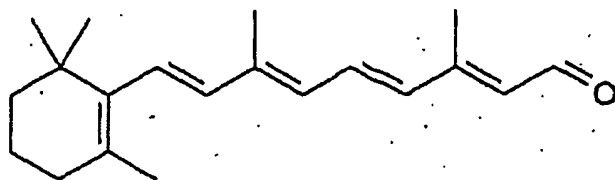


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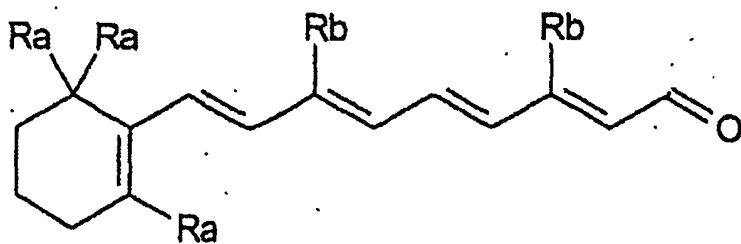
where b = 1-6, or



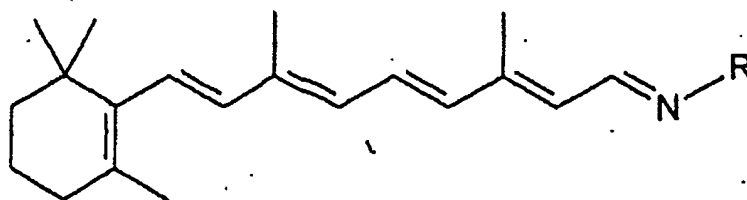
- R12 is chosen from mono- to polysaccharides, preferably uniform and/or mixed mono-, di- or trisaccharides, preferably glucose, glycerose, erythrose, threose, ribose, arabinose, lyxose, xylose, allose, altrose, galactose, gulose, idose, mannose or talose, where
- compounds 9-retinal of the structural formula



- retinal derivatives of the structure



- where Ra and/or Rb = alkyl or saturated or unsaturated alkoxy groups and
- 9-retinalalkanolamine Schiff's base of the structural formula



where R = R'(OH)<sub>n</sub> branched or unbranched alkanols, where R' = C1 to C20 hydrocarbon radical and n = 1 - 5, are excluded from the group of tetrasubstituted cyclohexene compounds according to the invention.

2. The agent as claimed in claim 1 for increasing skin tanning and/or melanin synthesis in the skin and/or the hair.

3. The agent as claimed in claim 1 or 2, characterized in that the agent is a cosmetic and/or dermatological preparation, a polymer matrix, a skin and/or wound covering, a bandage, a wipe or pad, a spray or a textile.

4. The agent as claimed in claim 3, characterized in that the agent is a cosmetic and/or dermatological preparation.

5. The agent as claimed in one of the preceding claims, characterized in that

- R1, R2, R5, R6 and/or R7 are methyl radicals and
- R4 is chosen from the amino acid radicals Ala, Ser or Gly.

6. The agent as claimed in one of the preceding claims, characterized in that one or more tetrasubstituted cyclohexene compounds are chosen from *N*-3,7-dimethyl-9-(2,6,6-trimethylcyclohex-1-en-1-yl)nona-2,4,6,8-tetraen-1-ylidene]alanine, (1E,2E,4E,6E,8E)-3,7-dimethyl-9-(2,6,6-trimethylcyclohex-1-en-1-yl)nona-2,4,6,8-tetraenal oxime, 2-([(1E,2E,4E,6E,8E)-3,7-dimethyl-9-(2,6,6-trimethylcyclohex-1-en-1-yl)nona-2,4,6,8-tetraen-1-ylidene]amino)ethanol,

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5        {{{(1E,2E,4E,6E,8E)-3,7-dimethyl-9-(2,6,6-trimethylcyclohex-1-en-1-yl)nona-  
2,4,6,8-tetraen-1-ylidene]amino}propane-1,2,3-triol,        N-[(2E,4E,6E,8E)-3,7-  
dimethyl-9-(2,6,6-trimethylcyclohex-1-en-1-yl)nona-2,4,6,8-tetraen-1-ylidene]-L-  
alanyl-L-alanine,    N-[(2E,4E,6E,8E)-3,7-dimethyl-9-(2,6,6-trimethylcyclohex-1-en-  
1-yl)nona-2,4,6,8-tetraen-1-ylidene]-L-seryl-L-serine        and/or        acetyl-  
retinyliminoethanol.

10        7. The agent as claimed in one of the preceding claims, characterized in that the  
content of tetrasubstituted cyclohexene compounds is between 0.0001 and 30%  
by weight, in particular between 0.01 and 10% by weight, particularly  
advantageously between 0.02 and 2% by weight, based on the total weight of  
the agent, preferably of the cosmetic preparation.

15        8. The agent as claimed in one of the preceding claims, characterized in that the  
tetrasubstituted cyclohexene compounds are present in encapsulated form.

20        9. The agent as claimed in claim 8, characterized in that the encapsulation material  
consists of collagen matrices, cyclic oligosaccharides, alpha-, beta-, HP-beta-,  
random-Me-beta- or gamma-cyclodextrin, cellulose, gelatin, wax matrices or  
liposomes.

25        10. The agent as claimed in one of claims 1 to 9, characterized in that at least one  
UVA filter and/or at least one UVB filter and/or at least one inorganic pigment,  
preferably an inorganic micropigment, is additionally present.

11. The agent as claimed in one of the preceding claims, characterized in that in  
addition antioxidants are added with an amount of from 0.001 to 30% by weight,  
particularly preferably 0.05-20% by weight, in particular 0.1-10% by weight,  
based on the total weight of the agent, preferably of a cosmetic preparation.

12. The cosmetic and/or dermatological preparation as claimed in one of claims 3 to 11, characterized in that preservatives, bactericides, perfumes, substances for preventing foaming, dyes, fillers, pigments which have a coloring effect, thickeners, wetting and/or humectant substances, fats, oils, waxes, alcohols, polyols, polymers, foam stabilizers, electrolytes, organic solvents, silicone derivatives, moisturizers, vitamins, proteins, photoprotective agents, stabilizers, insect repellents, water, salts, antimicrobially, proteolytically or keratolytically effective substances, medicaments or other customary constituents of a cosmetic or dermatological formulation are additionally present.

13. The preparation as claimed in claim 12, characterized in that glycerol is added as moisturizer in the range from 0.05-30% by weight, particularly preferably 1-10% by weight, based on the total mass of the preparation.

14. The cosmetic and/or dermatological preparation as claimed in one of claims 3 to 13 in combinations with

- active ingredients which have a positive effect on the condition of the skin, in particular active ingredients for positively influencing aging skin, in particular in combination with bioquinones, in particular ubiquinone Q10, creatin, creatinin, carnitine, biotin, isoflavone, cardiolipin, lipoic acid, antifreezing proteins, hop extracts and hop-malt extracts,
- promoting agents for restructuring connective tissue, in particular isoflavonoids,
- active ingredients for assisting skin functions in cases of dry skin, in particular vitamin C, biotin, carnitine, creatin, propionic acid, green tea extracts, eucalyptus oil, urea and mineral salts, in particular NaCl, sea minerals and osmolytes,

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- active ingredients for alleviating and/or positively influencing irritated skin states, in particular sericosides, various extracts of licorice, licochalcones, in particular licochalcone A, silymarin, silyphos, dexpanthenol,
- inhibitors of the prostaglandin metabolism, in particular of the cyclooxygenase and the leukotriene metabolism, in particular of 5-lipoxygenase or 5-lipoxygenase inhibitor proteins, FLAP,
- modulators of pigmentation, in particular tyrosine sulfate, dioic acid (8-hexadecene-1,16-dicarboxylic acid, lipoic acid, lipoamide, various extracts of licorice, kojic acid, hydroquinone, arbutin, fruit acids, in particular alpha-hydroxy acids (AHAs), bearberry (Uvae ursi), ursolic acid, ascorbic acid, green tea extracts, aminoguanidine, pyridoxamine and/or
- active ingredients which bring about enhanced or more rapid tanning of the skin, in particular Advanced Glycation End products (AGE), lipofuscins, nucleic acid oligonucleotides, purins, pyrimidines, NO-releasing substances.

15. The use of the agent as claimed in one of claims 1 to 14 in a or as aqueous system and/or surfactant preparation for the cleansing and/or care of the skin and/or the hair.

16. The use of a preparation as claimed in one of claims 3 to 14 as multiple emulsion, microemulsion, Pickering emulsion or sprayable emulsion.

17. The use of a preparation as claimed in one of claims 3 to 14 as presun, sunscreen or aftersun formulation.

18. The use of the agent as claimed in one of claims 1 to 14 for topical application to skin and/or hair.

19. The use of the agent as claimed in one of claims 1 to 14 for tanning the skin.

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20. The use of the agent as claimed in one of claims 1 to 14 for caring for the skin.

21. The use of the agent as claimed in one of claims 1 to 14 for protecting the skin and/or the hair against harmful UV rays.

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22. The use of the agent as claimed in one of claims 1 to 14 for increasing the synthesis of melanin in the skin.

10 23. The use of the agent as claimed in one of claims 1 to 14 for prolonging the brown coloration of the skin.

24. The use of the agent as claimed in one of claims 1 to 14 for protecting the skin against oxidative stress.

15 25. The use of the agent as claimed in one of claims 1 to 14 for protecting the skin against chronological and photo-induced skin aging.

26. The use of the agent as claimed in one of claims 1 to 14 for intensifying the hair color.

20

27. The use of the agent as claimed in one of claims 1 to 14 for preventing the graying of hair and/or for protecting against sunlight-induced bleaching of the hair.

25 28. The use of the preparation as claimed in one of claims 3 to 14 as shower gel, shampoo, conditioner, hair care treatment, hair rinse, hair tonic, hair spray, make-up, skin protection, face, cleansing, sunscreen, nutrient, day or night cream, gel or lotion, or cleansing preparation.